Inter-dependence Between the Dispersion Characteristic and the Magnitude of the Coupling Impedance in Waveguides with Periodic Structures

The analysis of Eq (4) shows that the coupling impedance of a periodic structure is inversely proportional to the delay coefficient η. Consequently, if it is required to secure a large delay in a given waveguide, the loss in the coupling impedance is inevitable. There are 4 Soviet references, 2 of which are translated from English.

SUBMITTED: August 14, 1958

4

69910

S/109/60/005/04/026/028
E140/E435

9.1300

AUTHORS: Chirkin, N.M. and Stadnik, Yu.G.

TITLE: On Certain Properties of a Coaxial Waveguide with Both Conductors Loaded by Discs

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 4, pp 694-698 (USSR)

ABSTRACT: This is a continuation of earlier published work (Ref 1,2). It is assumed that the disc spacing is substantially less than the wavelength in the waveguide whose walls are assumed ideally conducting. It is shown that the coaxial waveguide with loading on both conductors have the same dispersion properties as coaxial waveguides with loading on only a single conductor. The number of passbands however is increased, for example the first two passbands of the waveguide with loaded conductors occur in the same frequency interval as the first passband of a single-loaded coaxial waveguide. It is shown that anti-phased and co-phased waves with complex resultant field may exist simultaneously. This is accompanied by deterioration of the delay properties of

Card 1/2

69910

S/109/60/005/04/026/028
E140/E435

On Certain Properties of a Coaxial Waveguide with Both Conductors Loaded by Discs

the waveguide. There are 2 figures, 1 table and 7 references, 6 of which are Soviet and 1 English in Russian translation.

SUBMITTED: September 18, 1958

Card 2/2

4

29627
S/142/61/004/003/008/016
E192/E382

9,2590

AUTHORS: Chirkin, N.M. and Lyamov, V.Ye.

TITLE: Characteristics of anti-phase and in-phase waves in two-conductor resonator delay systems

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 4, no. 3, 1961, pp. 321 - 328

TEXT: Two-conductor delay systems (DS) are becoming increasingly important in view of the fact that it is possible to excite in them slow waves of the in-phase as well as anti-phase types. However, the characteristics of the in- and anti-phase waves in DS have not been studied sufficiently. In the following this problem is analysed in some detail. The first system considered is shown in Fig. 1a. It is assumed that a wave is anti-phase if the lines of its electric field are directed from one principal direction towards the other transverse direction, i.e. if in an arbitrarily transverse cross-section of the waveguide these directions carry opposite charges. In the case of an in-phase wave the principal directions for each transverse cross-section have similar

Card 1/6 5

Characteristics of ....

charges as regards magnitude and polarity. With regard to the DS shown in Fig. 1a, which is in the form of a disc-loaded coaxial waveguide, it is assumed that a modified anti-phase wave of the TEM type propagates in the system; the structure of the electric field of the wave and the conductance currents in the walls of the waveguide are as shown in the figure. Since the conductance current is equivalent to an inductance and the displacement current to a capacitance (Ref. 8 - the authors - IVUZ, Radiotekhnika, 1959, 2, no. 4, 424), the equivalent circuit of a cell of such a waveguide can be represented as shown in Fig. 1б which, in turn, can be transformed into the quadripole of Fig. 1в. In the circuit of Fig. 1б, three resonances can exist and these determine the frequency bandwidth of the quadripole. It is seen that the circuit of Fig. 1б is in the form of a symmetrical Π-type quadripole, whose scattering equation is in the form:

Card 2/6 5

Characteristics of ....

$$\cos\varphi = 1 - \left(\frac{C_2}{2C_1} \frac{1/\lambda^2}{1/\lambda_1^2 - 1/\lambda^2} + \frac{C_2}{2C_3} \frac{1/\lambda^2}{1/\lambda_3^2 - 1/\lambda^2} \right) \qquad (1)$$

where λ is the wavelength of the signal oscillations,
λ_1 and λ_3 are eigen wavelengths for the resonators formed by the discs of the internal and external conductors, respectively, and
φ is the phase-shift per cell.

In the case of an in-phase wave, the structure of the field is as shown in Fig. 2a and the equivalent circuit is in the form of a six-pole, which is similar to that of a disc-loaded waveguide (Ref.8). The system is symmetrical with respect to LL' . It is therefore possible to represent it as a quadripole of the type shown in Fig. 2b. It is seen that this circuit has clearly defined resonance frequencies. A series resonance is observed at the lower frequency and a parallel resonance at the higher frequency. The first resonance corresponds to the long-wave

Card 3/6 5

Characteristics of ....

cut-off frequency of the system, while the second resonance gives the upper cut-off frequency. The circuit of Fig. 2 is described by the following scattering equation:

$$\cos\varphi = 1 - \frac{C_2}{2}\left[\frac{1}{C_1(1/\lambda_1^2 - 1/\lambda^2) + C_3(1/\lambda_3^2 - 1/\lambda^2)} - \frac{1}{C_5}\right] \quad (8) .$$

By examining Eq. (8) it can be seen that the above delay system with an in-phase wave gives a very narrow passband. On the other hand (see Eq. 1), in the case of an anti-phase wave, the width of the passband and the delay coefficient can be varied by shifting the internal and external discs with respect to each other. The above equations were used to plot the scattering characteristics of in-phase and anti-phase waves in the above coaxial waveguide and the calculated results were compared with the experimental data taken from Ref. 7 (N.M. Chirkin and Yu.G. Stadnik - Radiotekhnika i elektronika, 1960, 5, no. 4, 694).

Card 4/5

Characteristics of ....

It was found that the analysis was accurate enough for most practical applications. It is also pointed out that the above DS can be used in devices with continuous interaction. Thus, when an in-phase wave is excited in the above system, it can be used in linear accelerators operating at a fixed frequency. There are 4 figures and 13 references: 11 Soviet-bloc (3 of which are translated from English) and 2 non-Soviet-bloc. The 2 English-language references mentioned are: Ref. 12 - R. Adler, O.N. Kromhout and P.A. Clavier - PIRE, 1955, 43, no. 3, 339; Ref. 13 -ditto- PIRE, 1956, 44, no. 1, 82.

ASSOCIATION: Kafedra radiotekhnicheskoy elektroniki Taganrogskogo radiotekhnicheskogo instituta (Department of Radio-engineering Electronics of Taganrog Radiotechnical Institute)

SUBMITTED: February 24, 1960 (initially)
October 8, 1960 (after revision)

Card 5/15

37412
S/142/62/005/001/007/012
E192/E382

9.1300

AUTHOR: Chirkin, N.M.

TITLE: In-phase and anti-phase waves in twin flat periodic structures

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 5, no. 1, 1962, 77 - 84

TEXT: The systems analyzed are shown in Figs. 1a, б and в. The analysis of the systems is carried out under the assumption that they are infinitely long and uniform so that their structural period D is much smaller than the wavelength; secondly, it is assumed that the parallel plates are ideally conducting. First, the case of infinitely wide periodic structures is analyzed and it is shown that the wave propagation in the system is fully described by the following equation:

$$\gamma \operatorname{th} \gamma d = \frac{k\left[\operatorname{ctg} kh + \operatorname{ctg} kg\right]}{\left(\frac{k}{\gamma}\right)^2 + \operatorname{ctg} kh \operatorname{ctg} kg} \qquad (6)$$

Card 1/4

where $d = (b - g)$, which is the clearance between the upper and lower cells. When $h = g$, Eq. (6) is in the form:

$$\gamma \operatorname{th} \gamma d = 2 \frac{k \operatorname{ctg} kh}{\left(\frac{k}{\gamma}\right)^2 + \operatorname{ctg}^2 kh} \qquad (7)$$

which describes the symmetrical case. It is found, by analyzing Eq. (7) for various special cases, that by suitably selecting the heights of the resonator plates in the structures of Fig. 1, it is possible to "separate" the in-phase and the anti-phase waves and to reduce their phase velocities. It is pointed out that Eq. (6) is similar to the characteristic equation of a disc-loaded coaxial waveguide so that the equation is applicable also to this system. Further, the equation can be used to analyze a rectangular waveguide, whose one or two opposite walls

In-phase and anti-phase ....

are furnished with ribs of the type shown in Figs. 1б and 2 . For this purpose, however, it is necessary (Ref. 7 - Ye.S. Kovalenko and V.I. Shimanskiy - Izv. vuzov SSSR, Radiotekhnika, v.5, no. 2, 1960, 153) to redefine the propagation constant and the wave number, as follows:

$$\gamma = \sqrt{\beta^2 + \left(\frac{m\pi}{a}\right)^2 - k_o^2} \qquad (22)$$

$$k = \sqrt{k_o^2 - \left(\frac{m\pi}{a}\right)^2} \qquad (23)$$

where β is the phase constant,
k_o is the wave number in free space, and
m is the field mode number for the wide wall a of the waveguide.

Card 3/5

By solving Eqs. (6) and (7) for $v = 0$ and $v = \infty$ it is easy to find the limiting wavelengths defining the transmission bandwidth of the periodic waveguides, of the type shown in Fig. 1. It is concluded that separation of the in-phase and anti-phase waves is only possible if the waveguide is asymmetrical, i.e. the height of the lower ribs is different from that of the upper ribs. There are 3 figures and 1 table.

ASSOCIATION: Taganrogskiy radiotekhnicheskiy institut
(Taganrog Radiotechnical Institute)

SUBMITTED: April 1, 1961 (initially)
May 25, 1961 (after revision)

ACCESSION NR: AT3012843 S/2966/62/000/000/0077/0081

AUTHOR: Chirkin, N. M.

TITLE: On the theory of multistage waveguides with periodic structure

SOURCE: Voprosy* elektroniki i elektrodinamiki sverkhvy*sokikh chastot. Taganrog, 1962, 77-81

TOPIC TAGS: diaphragm waveguide, dispersion characteristic, periodic structure, "splitting" band, transmitted wave, magnetron generator

ABSTRACT: The properties of Q-multistage, circular, diaphragm waveguides have been studied with circular diaphragm thickness located along the waveguide in alternating series. The equivalent circuit diagram is constructed and the dispersion characteristics studied for a particular geometry with a periodic structure of 0.8 cm. It is shown that multistaging leads to "splitting" bands in the transmitted wave. Using this type of multistaged waveguide (graduations in the disk diaphragm width) as a block anode in a magnetron generator leads to "splitting" in the generated frequency. Orig. art. has: 12 equations and 3 figures.

ASSOCIATION: none

Card 1/1

ACCESSION NR: AT3012814 S/2966/62/000/000/0082/0086

AUTHOR: Chirkin, N. M.

TITLE: Theory of waveguides with periodic structure

SOURCE: Voprosy* elektroniki i elektrodinamiki sverkhvy*sokikh chastot. Taganrog, 1962, 82-86.

TOPIC TAGS: waveguide, periodic structure, delaying system, space harmonic, phase constant, delayed wave, ripple waveguide, diaphragm waveguide, complex amplitude

ABSTRACT: The author obtains expressions for the space harmonic which not only make it easier to compute the values of the amplitudes and resistances related to space harmonics but also to discover how the latter depend on the lengthwise dimensions, the delay parameter, and the wave length of the exciting oscillations. The latter characteristic is more applicable to waveguides with a periodic structure characterized by "zero" dispersion. Examples of such, under certain conditions, are a spiral in a circular waveguide, a coaxial waveguide with disks on one or both conductors, etc. He shows the results graphically. Orig. art. has: 4

Card 1/2

ACCESSION NR: AT3012844

figures and 9 formulas.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 07Oct63	ENCL: 00
SUB CODE: GE	NO REF SOV: 003	OTHER: 001

Card 2/2

CHIRKIN, N.M.

Types and characteristics of waves in a circular septate wave guide. Izv. vys. ucheb. zav.; radiotekh. 6 no.5:502-508 S-O '63. (MIRA 17:1)

1. Rekomendovana kafedroy radiotekhnicheskoy elektroniki Taganrogskogo radiotekhnicheskogo instituta.

ACCESSION NR: AP4019018 S/0062/64/000/002/0386/0388

AUTHORS: Meshkova, I. N.; Tsvetkova, V. I.; Chirkov, N. M.

TITLE: Rupture of the polymer chain during ethylene polymerization over $TiCl_4$-$AlEt_2Cl$

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 2, 1964, 386-388

TOPIC TAGS: polyethylene chain rupture, titanium chloride, diethylaluminum chloride, polymer chain, ethylene, ethylene depolymerization, ethylene polymerization, polymer chain rupture

ABSTRACT: This is a continuation of the work by the same authors concerning depolymerization of ethylene depending on the monomer concentration and $TiCl_4$ content in the $TiCl_4$-$AlEt_2Cl$ catalyst (same journal 1963, 808). In the depolymerization process the chain rupture is accompanied by transmission processes. The purpose of this work was to calculate the reaction constants of these processes. At 30C and with a $TiCl_4$ concentration of 1 g/l (molar ratio of $AlEt_2Cl$:$TiCl_4$ ranges from 0.6:1 to 1.6:1), spontaneous rupture is infinitesimal. Tests have shown that the ratio of rate constants for

Card 1/2

ACCESSION NR: AP4019018

the chain rupture in processes initiated by the monomer, by $TiCl_4$ and by $AlEt_2Cl$, as indicated by the changes of the molecular weight of the polymer depend on the molar ratio of titanium chloride to aluminum alkyl chloride chiefly because of the change in the nature of the catalytic centers rather than because of the chain rupture rate due to the components of the catalyst. The article contains detailed calculations of reaction constants - both polymerizing and depolymerizing. At adequate monomer pressures (1 atm and above) with proper concentrations of conventional catalysts, chain ruptures are much higher than that obtained with $TiCl_4$ and $AlEt_2Cl$. Orig. art. has: 00.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 13Aug63 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: CH NR REF SOV: 003 OTHER: 000

Card 2/2

L 11707-66 EWT(m)/EWP(j)/T RM
ACC NR: AP6002104 (A) SOURCE CODE: UR/0062/65/000/011/2075/2077

AUTHORS: Fushman, E. A.; Tsvetkova, V. I.; Chirkov, N. M.

ORG: Institute for Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Polymerization of ethylene by the system $(C_5H_5)_2TiCl_2$ - $AlEt_3$ in 1,2-dichlorethane solution

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 11, 1965, 2075-2077

TOPIC TAGS: polymer, polyethylene, catalytic polymerization, titanium compound

ABSTRACT: The effect of the catalytic system $(C_5H_5)_2TiCl_2$ - $AlEt_3$ in 1,2-dichlorethane solution on the polymerization of ethylene was studied to extend the previously published work by the authors (Dokl. AN SSSR. 164, 1085, 1965). The experimental procedure was identical to that reported by I. N. Meshkova, G. M. Bakova, V. I. Tsvetkova, and N. M. Chirkov (Vysokomolekul. soyedineniya. 10, 1516, 1961). The influence of the ethylene concentration and of the catalyst composition and concentration on the yield and molecular weight of the polyethylene was investigated. Experimental results are presented in graphs and tables (see Fig. 1). It was found that this catalytic system polymerized ethylene at a high rate of polymerization. The activity of the system is mainly determined by the molar ratio of

UDC: 542.952+541.127

Card 1/2

L 11707-66

ACC NR: AP6002104

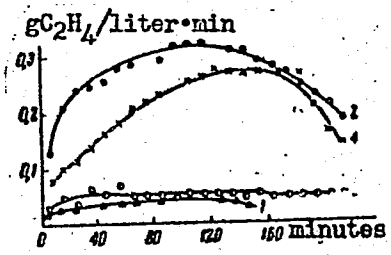


Fig. 1. Change of the catalytic activity of the system $(C_5H_5)_2TiCl_2$ - $AlEt_3$ in time for different concentrations of $(C_5H_5)_2TiCl_2$ and $AlEt_3$ at 20C. Solvent - 1,2-dichlorethane, $p_{C_2H_4}$ = 390 mm Hg. 1 - $[(C_5H_5)_2TiCl_2] = 1.2 \times 10^{-3}$ M. Al:Ti = 3.3:1; 2 - $[(C_5H_5)_2TiCl_2] = 1.2 \times 10^{-3}$ M. Al:Ti = 13.5:1; 3 - $[(C_5H_5)_2TiCl_2] = 0.32 \times 10^{-3}$ M. Al:Ti = 12.5:1; 4 - $[(C_5H_5)_2TiCl_2] = 0.32 \times 10^{-3}$ M. Al:Ti = 3.75:1.

$(C_5H_5)_2TiCl_2$:$AlEt_3$. The molecular weight of the polyethylene increases with increase in the concentration of monomer, is practically independent of the initial concentration of $(C_5H_5)_2TiCl_2$, and decreases with increase in the initial concentration of $AlEt_3$. Orig. art. has: 1 table and 1 graph.

SUB CODE: 07/ SUBM DATE: 01Apr65/ ORIG REF: 003/ OTH REF: 003

BVK

Card 2/2

ACC NR: AP7002026 SOURCE CODE: UR/0142/66/009/005/0667/0671

AUTHOR: Chirkin, N. M.; Lyamov, V. Ye.

ORG: none

TITLE: Calculating and measuring the characteristic impedance and coupling impedance of periodic waveguides

SOURCE: IVUZ. Radiotekhnika, v. 9, no. 5, 1966, 667-671

TOPIC TAGS: periodic waveguide, electric impedance, rectangular waveguide

ABSTRACT: Two simpler-than-hitherto-known methods of determining characteristic impedance and coupling resistance as functions of frequency are suggested: (1) A method that excludes shunt admittance; examination of a simple equivalent circuit of a rectangular comb waveguide yields these formulas:

characteristic impedance, $$Z_{0n} = -\frac{\lambda}{2\pi c}\frac{1}{C_1\left[1-\left(\frac{\lambda}{\lambda_0}\right)^2\right]\sin\theta},$$

coupling resistance, $$R_m = \div\frac{\lambda}{4\pi c}M_m^2\frac{1}{C_1\left[1-\left(\frac{\lambda}{\lambda_0}\right)^2\right]}\frac{\operatorname{tg}\frac{\theta}{2}}{\left(\frac{\theta}{2}\right)^2}.$$

Card 1/2 UDC: 621.372.21

ACC NR: AP7002026

Thus, from known normal field coefficient of m-th spatial harmonic M_m, critical wavelength λ_k of the selected mode, its dispersion characteristic, resonance wavelength λ_0 and capacitance C_1, both Z_{on} and R_m can be calculated. (2) A method of two-terminal network; examination of an equivalent symmetrical quadripole with short-circuited output yields these formulas for periodic waveguide:

characteristic impedance, $Z_{on} = |Z_{1xx}| \operatorname{tg} \theta$,

coupling resistance, $R_m = M_m^2 \frac{\sin^2 \frac{\theta}{2}}{\left(\frac{\theta}{2}\right)^2} |Z_{1xx}| \operatorname{tg} \theta$.

Z-quantities can be measured by conventional techniques; θ and γ can be determined from the dispersion characteristic of the wave. Orig. art. has: 2 figures and 13 formulas.

SUB CODE: 09 / SUBM DATE: 21May64 / ORIG REF: 005 / OTH REF: 004

Card 2/2

CHIRKIN, O., inzh.; KUZ'MIN, V.; BORISOV, L.; ISHKIN, V.; SEREBRYANNIKOV, G.

Information. Avt.transp. 42 no.12:52-54 D '64. (MIRA 18:4)

CHIRKIN, O., inzh.

Means for the mechanization of loading and unloading operations.
Avt.transp. 43 no.3:50-53 Mr '65. (MIRA 18:5)

CHIRKIN, O.P.[Chyrkin, O.P.], doktor tekhn. nauk

Study of a joint flame-layer combustion process. Kompl. vyk. pal.-energ. res. Ukr. no.1:294-307 '59. (MIRA 16:7)

1. Khar'kovskiy institut inzhenerov zheleznodorozhnogo transporta.
(Boilers) (Furnaces) (Fuel)

CHIRKIN, S.

Regulating sandbanks with soil dumps. Mor. i rech.flot 14 no.9: 26-27 S '54. (MLRA 7:10)
(Rivers--Regulation)

CHIRKIN, S.I.; GAVRILOV, G.M., redaktor; GLADKIKH, N.N., tekhnicheskiy redaktor

[Safety engineering in the exploitation of industrial steam boilers, vessels operating under pressure, compressors, and pipe lines] Tekhnika bezopasnosti pri ekspluatatsii promyshlennykh parovykh kotlov, sosudov, rabotaiushchikh pod davleniem, kompressorov i truboprovodov. Moskva, Gos. izd-vo obor. promyshl., 1955. 136 p. (MLRA 9:10)

(Pressure vessels--Safety measures)

CHIRKIN, S.P.

Some considerations in connection with problems stated in V.V. Rogovastov's article. S.P.Chirkin. Rech.transp.15 no.12:18-19 D '56. (MLRA 10:2)

1. Proizvoditel' rabot Ryazanskogo tekhnicheskogo uchastka.
(Rivers--Regulation)

CHIRKIN, V.

CHIRKIN, V., inzh.

Automatization of prospecting boring. Mast. ugl. 6 no.12:12 D '57.
(MIRA 11:1)

(Boring)

L 01860-67 EWT(d) IJP(c)

ACC NR: AP6032398 SOURCE CODE: UR/0198/66/002/009/0119/0123

AUTHOR: Chirkin, V. P. (Kiev)

ORG: Institute of Mechanics, Ukrainian Academy of Sciences (Institut mekhaniki, AN UkrSSR)

TITLE: On solving a differential equation of the form $\ddot{x}+p(t)x=0$

SOURCE: Prikladnaya mekhanika, v. 2, no. 9, 1966, 119-123

TOPIC TAGS: second order differential equation, Volterra integral equation, integral equation solution, iterative method

ABSTRACT: A solution of the differential equation of the form

$$\ddot{x}+p(t)x=0, \tag{1}$$

where p(t) is a certain continuous function which can be expanded in Maclaurin series and having various initial conditions $x(o) = \dot{x}_o$; $\dot{x}(o) = x_o$ is obtained by transforming this equation to an equivalent Volterra integral equation of the second kind. First, the case of equation (1) when $\phi(t) = t^\nu$, where ν is a positive integer is considered and the corresponding integral equation

$$x=\dot{x}_0 t+x_0-\int_0^t (t-\tau)\tau^\nu x(\tau)\,d\tau, \tag{2}$$

Card 1/2

L 01860-67
ACC NR: AP6032398

is written. It is pointed out that an exact solution of this equation can be obtained by the classical method of successive approximations; in practice, however, difficulties of a technical character arise in determining the iterations (starting with the third one) and explicit forms of m-th iteration of the kernel $K(t, \tau) = -(t-\tau)\tau^{\nu}$ and of the corresponding resultant are not obtained. The author presents a method for obtaining the resultant by successive approximations of the kernel. The general form of such a resolvent is derived and the solution of the integral equation is written in the form of an infinite series with unknown coefficients in certain particular cases is presented and the solution obtained here is compared with the solutions obtained by other methods. The cases of equation (1) where $p(t) = (ct^{\nu} + b)$ where $c = -a$, $b = 1$, $v = zn$, and $p(t) = \sum_{i=0}^{\infty} b_i t^i$, are analyzed and the general form of the resolvents is obtained. It is pointed out that the approach to the solution of equation (1) presented in this article can be extended to the case of higher-order equations for a sufficiently large class of functions p(t). Orig. art. has: 17 formulas. [LK]

SUB CODE: 12/ SUBM DATE: 10May66/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 5096

Card 2/2

SOV-113-58-8-14/21

AUTHOR: Litvinenko, D.A., Candidate of Technical Sciences; Chirkin, V.M.

TITLE: Apparent Shear Lines on the Surface of Car Body Parts (Lozhnyye linii sdviga na poverkhnosti kuzovnykh detaley)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 8, pp 40-41 (USSR)

ABSTRACT: The "Zaporozhstal'" Plant has made a study of the peculiar raised lines which often appear on the surface of car body parts stamped from annealed sheet steel. These lines, assumed to be shear lines, appear in the same form and place on parts stamped from the various sheets of a given batch. The study carried out at the plant reveals that they have nothing in common with shear lines but are, in fact,formed in the sheets after annealing and during transportation to the dressing mill or when sheets, stuck together, are peeled apart. The author calls them fracture lines and shows that they can be reproduced in the laboratory. They can be avoided by taking steps to prevent the formation of fractures (creases) in the annealed steel sheets. There are 2 photos, 1 figure and 1 graph.

Card 1/2

SOV-113-58-8-14/21

Apparent Shear Lines on the Surface of Car Body Parts

ASSOCIATION: TsNII chernoy metallurgii (TsNII for Ferrous Metallurgy)

1. Automobile industry--USSR 2. Metals--Processing
3. Metals--Properties

Card 2/2

SOV/133-58-12-17/19

AUTHOR: Chirkin, V.M.

TITLE: Microstructure of Aluminium Killed Steel for Deep Drawing (Mikrostruktura uspokoyennoy alyuminiyem stali dlya glubokoy vytyazhki)

PERIODICAL: Stal', 1958, Nr 12, pp 1135-1137 (USSR)

ABSTRACT: This is a survey of Western literature on the subject. There are 5 references, all English.

Card 1/1

18.3200,18.5100

77457
30V/133-60-1-18/30

AUTHORS: Chirkin, V. M., Ksenzuk, F. A. (Engineers)

TITLE: Causes of Swelling of Carbon Steel Slabs

PERIODICAL: Stal', 1960, Nr 1, pp 59-62 (USSR)

ABSTRACT: This is a report concerning a new defect of metal at the "Zaporozhstal'" Plant (zavod "Zaporozhstal'"), namely, swelling of the slabs, which appeared during the reduction of ingots and also during heating of slabs in continuous furnaces and rolling them on a thin sheet mill. This resulted in the loss of metal and jamming of strips in the finishing group accompanied by the breakdowns of rolls. The analysis of samples of gas, taken from slab's cavities, under the direction of I. A. Goncharov (Engineer), by drilling under water, showed the following composition(%):

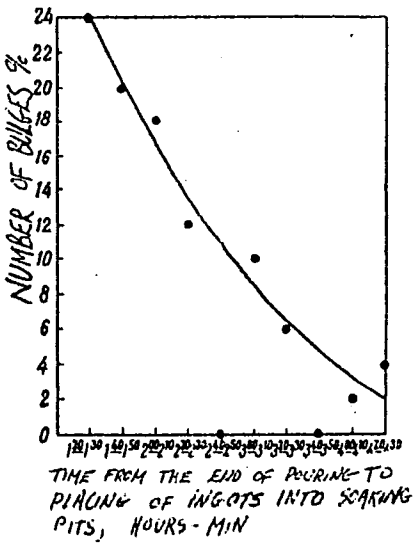
Card 1/6

Type of steel	H_2	CO	CO_2	N_2	CH_4
St 3 kp	65.0	22.0	5.0	8.0	–
St 3 kp	59.0	13.8	0.3	26.9	–
St 3 ps	52.0	23.0	12.0	12.7	0.3

The check of heating-temperature schedule in the soaking pits for 25 melts (for swollen slabs) gave the following results: (1) number of melts with temperature in all chambers of $\leqslant$ 1,360° C (in keeping with instructions), 5; (2) with temperature in one or several chambers of 1,370-1,390° C, 9; (3) with temperature in one or several chambers of $\leqslant$ 1,400° C, 11. Therefore, in 20 out of 25 melts the temperature in one or several chambers was higher than that prescribed by the instructions. Some special tests were conducted

with participation of D. I. Shirinskiy, V. N. Lola, A. L. Khudas, and N. V. Pal'chik (Engineers) for verification of the effect of heating of ingots on swelling of the slabs (see Fig. 5). The authors also give a diagram of change in gas content during the crystallization of the ingot. The authors mention that in the experimental study of pouring steel St 3 kp, the aftercharge of metal surface (before capping) by ground ferrosilicon was introduced by suggestion of A. I. Marinov and D. I. Shirinskiy. The authors arrived at the following conclusions. (1) The swelling of slabs from carbon steel during rolling of ingots on a slabbing mill (when heating the slabs in continuous furnace and rolling same into strip) is explained by the formation of cavities in the ingots. These cavities are filled with highly compressed gases. (2) The abundant liberation of gases in the inner cavities of the ingot is caused first of all by the high general saturation of steel with gases, by the rapid formation of hard crust in the upper portion of the ingot, and by the retarded crystallization of

Fig. 5. The relationship between the number of swellings in slabs and the time elapsed between the end of pouring and placing ingots into soaking pits.

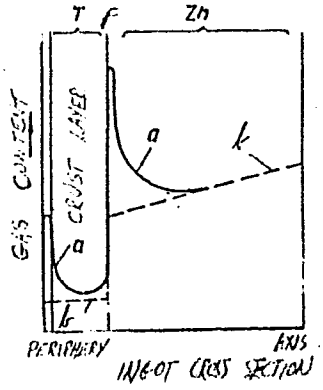


Card 4/6

Causes of Swelling of Carbon Steel Slabs

77457
SOV/133-60-1-18/30

Fig. 6. A diagram of change in gas content in the section of crystallizing ingot (according to I. N. Golikov, Stal', 1954, Nr 12): (a) probable gas content in the process of crystallization; (b) equilibrium gas content (T, solid metal; Zh, liquid metal; F, front of crystallization).



Card 5/6

metal. (3) For prevention of the above, there should be no deviations from the technological instructions: no decrease in the speed of burning out of carbon during rimming heat; no feeding into the furnace of undried slag-forming oxidizers and reducers; no tapping of steel into the undried ladle or mixing of metal with slag during tapping and pouring of melt. It should not be allowed: (a) to cover the ingots too early with lids; (b) to move the ingots too early into the soaking pits, or stock-piling same; (c) to increase the temperature of heating ingots in the chamber and to increase the duration of holding the ingots at elevated temperatures. A combined effect of some of the above factors can result in swollen slabs. (4) The practical measures taken by the plant in accordance with the theoretical analysis of the mechanism of formation of swollen slabs (which can be a subject of discussion) proved to be sufficiently effective to prevent the reappearance of the defects. There are 6 figures; and 3 Soviet references.

ASSOCIATION: Central Sckentific Research Institute of Ferrous Metallurgy and the "Zaporozhstal'" Plant (TsNIIChM i zavod "Zaporozhstal'")

18.5200,18.7000

77463
SOV/133-60-1-24/30

AUTHORS: Chirkin, V. M., Barziy, V. K. (Engineers)

TITLE: The Effect of Structure on Mechanical Properties and Deep-Drawing Capacity of Steel Killed by Aluminum

PERIODICAL: Stal', 1960, Nr 1, pp 74-77 (USSR)

ABSTRACT: This is a brief report concerning the study of differences in mechanical properties and deep-drawing capacity of nonaging steel with aluminum (steel 08Yu) manufactured by two alternate technological methods resulting in different microstructures of annealed cold-rolled sheets. The test melts of such sheet steel were produced in 200-ton open-hearth furnaces as rimmed steel and (after tapping) were fully oxidized by aluminum. The ingots were heated in soaking pits at 1,350-1,360° C and rolled into slabs which, after holding in continuous furnaces at 1,250-1,350° C for 1-1.5 hours, were rolled in a continuous mill into strips 2-3 mm thick. Part of these strips (after hot-rolling) were coiled without the

Card 1/7

preliminary water-cooling (temperature of the strip over 700° C. Alternate I). Another part (during the movement over the roller conveyor) was subject to water-spray-cooling through the nozzles installed before the coiler (coil temperature under 650° C. Alternate II). The chemical composition, the method of cooling the strips before coiling, and the type of microstructure of cold-rolled sheets of six test melts are given in Table 1. With water-spraying of hot-rolled strips before coiling, the structure of annealed cold-rolled sheets consisted of flattened, stretched in two directions grains of ferrite called "pancake-shaped." Without the application of water-cooling of strip before coiling, the annealed cold-rolled sheets had a regular microstructure of equiaxial grains of ferrite. The metal of six test melts shown in Table 1 was sent to Gor'kiy Automobile Plant (Gor'kovskiy avtomobil'nyy zavod) for deep-drawing of

The Effect of Structure on Mechanical Properties and Deep-Drawing Capacity of Steel Killed by Aluminum

77463
SOV/133-60-1-24/30

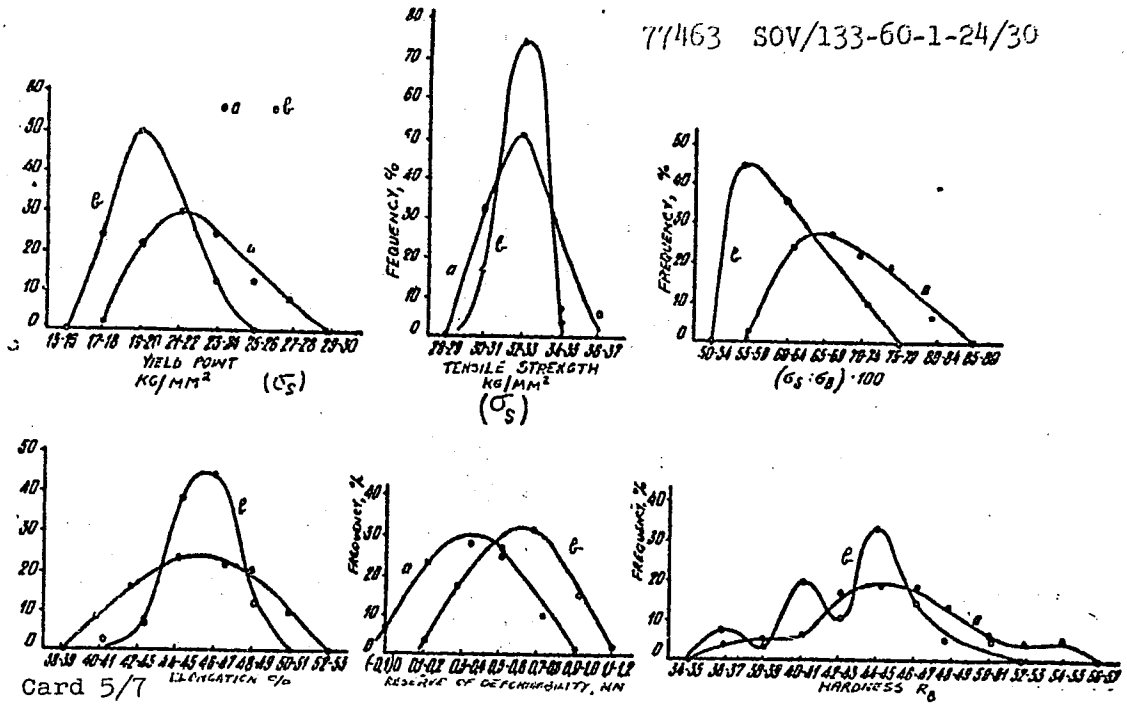
Table 1. Chemical composition and structure of sheets of test melts.

№ of melt	Chemical composition of ladle samples %					Shape of ferrite grains in structure of annealed cold rolled sheets
	C	Mn	S	P	Al**	
1*	0,08	0,35	0,023	0,009	0,04	"Pancake"
2*	0,08	0,43	0,024	0,009	0,03	
3	0,07	0,35	0,025	0,006	0,03	
4	0,08	0,31	0,021	0,008	0,03	Equi-axial
5	0,07	0,46	0,025	0,008	0,02	
6	0,07	0,42	0,024	0,007	0,02	

* Strips before winding were cooled by water spray (other melts had no cooling)
** Metallic

Card 3/7

complex body shapes. The sheets of test batches were subject to check tests in the laboratories of the "Zaporozhstal'" Plant (zavod "Zaporozhstal'") and the Gor'kiy Automobile Plant. The results of tests are given in Fig. 3. The authors arrived at the following conclusions. (1) Depending on the applied technology, the annealed cold-rolled sheets of nonaging steel 08Yu may have the microstructure of equiaxial grains or of oblong, stretched in two directions ("pancake-shaped") grains. (2) The hardness, yield point, ratio σ_S/σ_B, and the depth of Ericksen's indentation of 08Yu sheets with "pancake" structure are better than those of the sheets with equiaxial grain. The elongation and tensile strength are about the same for both. (3) The sheets of steel 08Yu with "pancake" grain have higher deep-drawing capacity than the sheets of this steel with equiaxial grain and have equal surface quality after deep-drawing.



Card 5/7

Caption to Fig. 3.

Fig. 3. Mechanical properties (frequency curves) of sheets of 08Yu steel with equiaxial (a) and "pancake-shaped" (b) grains (the reserve of deformability is the algebraic difference between the actual and standard (according to the All-Union State Standard 914-56) (GOST 914-56) depth of indentation by Ericksen).

The Effect of Structure on Mechanical Properties and Deep-Drawing Capacity of Steel Killed by Aluminum

77463
SOV/133-60-1-24/30

(4) The rapid cooling of strips (after hot-rolling) to temperature below 650° C, required for formation of "pancake" grain in annealed cold-rolled sheets of 08Yu steel, can be achieved by application of water-spraying before coiling, also (without water-spraying) by the sufficiently long duration of travel of the strip through the conveyor. There are 3 figures; 4 tables; and 3 references, 1 Soviet, 1 U.K., 1 U.S. The U.K. and U.S. references are: A. J. K. Honeyman, Sheet Metal Industries, 1955, Vol 32, Nr 343, pp 855-59; 1957, Vol 34, Nr 357, pp 51-65; R. L. Solter and C. W. Beatte, Journal of Metals, 1951, Vol 3, IX, pp 721-26.

ASSOCIATION: Central Scientific Research Institute of Ferrous Metallurgy and "Zaporozhstal'" Plant (TsNIIChM i zavod "Zaporozhstal'")

Card 7/7

CHIRKIN, V.M.

Characteristics of low-carbon steel crystallization in continuous casting.[from foreign publications]. Stal' 20 no.6:511-513 Je '60. (MIRA 14:2)

(Continuous casting) (Crystallization)

CHIRKIN, V.M.; ROMANYCHEV, K.M.

Properties and workability of nonaging various brand steels. Biul. TSIICHM no.10:41-43 '60. (MIRA 15:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Chirkin). 2. Gor'kovskiy avtozavod (for Romanychev). (Steel--Testing) (Sheet-metal work)

CHIRKIN, V.M., referent

Factors affecting the toughness and the cold brittleness limit of steel. Stal' 21 no. 4:355-361 Ap '61. (MIRA 14:4)
(Steel—Brittleness)

LITVINENKO, D.A.; CHIRKIN, V.M.

Production and quality of cold-rolled sheets of nonaging steel.
Sbor.trud.TSNIICHM no.27:189-198 '62. (MIRA 15:8)
(Sheet steel)

LITVINENKO, D.A.; CHIRKIN, V.M.

Effect of arsenic on the properties of low-carbon automobile sheet steel. Sbor.trud.TSNIICHM no.27:199-210 '62.
(MIRA 15:8)

(Steel, Automobile)

PRIDANTSEV, M.V., prof., doktor tekhn.nauk; LEVINZON, Kh.Sh.; LITVENENKO, D.A.; CHIRKIN, V.M.

Heat treatment of low-carbon rolled sheets in conveyer furnaces. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. no.11:9-14 '62. (MIRA 15:11)

(Steel, Structural--Heat treatment)

LITVINENKO, D.A.; DRYASHIN, I.B.; CHIRKIN, V.M.

Cold-rolled sheets with increased drawing characteristics.
Avt.prom. 29 no.1:32-33 Ja '63. (MIRA 16:1)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii i Moskovskiy avtozavod imeni Likhacheva.
(Steel, Structural)

CHIRKIN, V.N., inzh.-mekhanik.

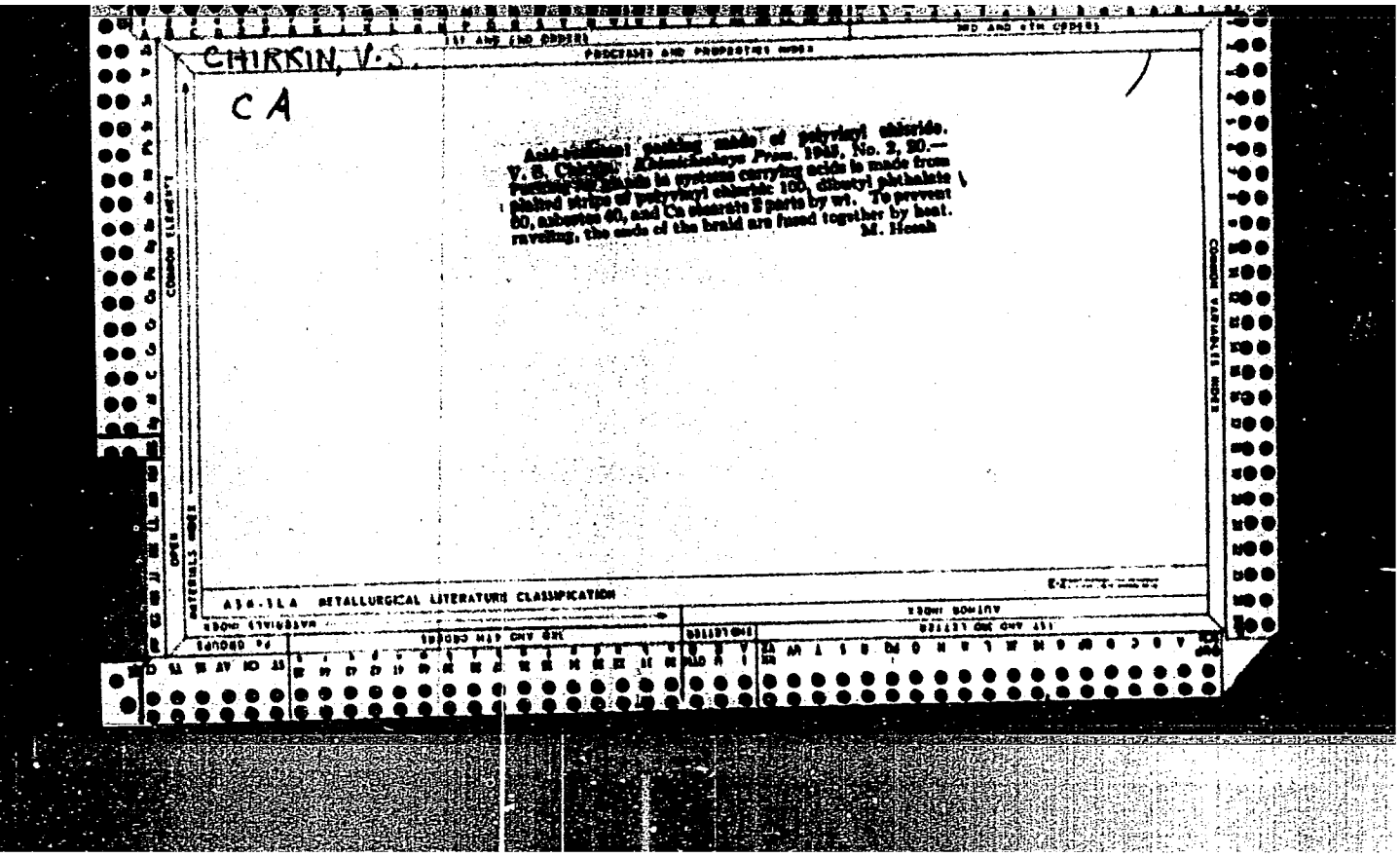
Calculating the variable constituents of static forces acting on skip cages during unloading in dump tracks. Ugol' 34 no.1:46-47 Ja '59. (MIRA 12:1)

(Mine hoisting)

GOLUBENTSEV, A.N. [Holubentsev, O.M.]; CHIRKIN, V.P. [Chyrkin, V.P.]

A method for the reduction of differential equations. Dop. AN URSR no.4:429-431 '65. (MIRA 18:5)

1. Institut mekhaniki AN UkrSSR.



CHIRKIN, V. S.

"Methods of Heat Transfer From Nuclear Reactors," by V. S. Chirkin, Atomnaya Energiya, No 5, Sep/Oct 56, pp 94-102

This article surveys present methods of heat transfer from reactors in which boiling and nonboiling water, aqueous solutions, gases, and liquid metals are used as heat conductors.

The paper is based entirely on Western publications, several of which have been translated into Russian.

Sum 1274

CHIRKIN, V.S.

CARD 1 / 3 PA - 1209

SUBJECT USSR / PHYSICS
AUTHOR CIRKIN, W.S., JUKIN, W.P.
TITLE The Critical Phenomena connected with Heat Transfer in the Current of not Boiling Water for an Annular Duct.
PERIODICAL Žurn. techn. fis, 26, 1542-1555 (1956)
Publ. 7 / 1956 reviewed 8 / 1956

The coefficient for the heat transfer from the heating surface to the not boiling water is computed for an annular duct in accordance with

$$Nu = 0{,}023\ Re^{0,8}\ Pr^{0,4}\ \left(\frac{d_1}{d_2}\right)^{0,5}$$

The heat current securing the beginning of the boiling process is $q_{A.K.}$

The coefficient of the heat transfer is, as experiments showed, a function of the heat current. The critical heat current is that in which the steam bubbles form a layer of steam between the solid surface to be cooled and the liquid current. At the critical point of the heat transfer the coefficient of heat transfer decreases considerably, but the temperature of the surface to be cooled rises accordingly. In experiments the amount of the critical heat current is therefore determined by the conditions on which the heat-giving element burns through. These conditions are characterized by: w (m/sec) - velocity of the not boiling water entering the domain of operation; t_W ($^{\circ}C$) - average water temperature when leaving the domain

of operation; $\delta = \frac{d_1 - d_2}{2}$ (mm) - size of duct between the outer tube (d_1 mm) and the cylindrical heat-giving element (d_2 mm); P (atm overpr) - pressure at which the experiment was carried out.

The tests made for the purpose of determining the dependence $q_{kr} = f(w, t_w, \delta, P)$ kcal/m^2h^{-1} were carried out on two testing stands: one up to a pressure of 6 atm. overpressure, the other up to about 20 atm. overpressure. A pump conveyed the distilled water by way of a container and preheater to the place of operation, from where the water reaches the measuring vessels by way of a cooler, after which it returns to the pump. The plant was fed by means of transformers of from 10 to 220 V and 500 A. Measurements were carried out for: water consumption at the input, water temperature at in- and output of the range of operation, pressure in its center part, pressure gradient at the heat-conducting element and the electric output used for heating the element. The quantity of heat transferred by the water was computed from $Q = gc(t_w - t_1)$ kcal/h^{-1} and was checked by electric measurements. The critical heat current was determined according to $q_{kr} = \frac{0,86 \cdot 0,85\ IU}{f}$ kcal $m^{-2}h^{-1}$. At the critical point of heat transfer the heat-conducting element burnt through and the circuit

was broken. At this moment all necessary quantities were measured. The values of the critical heat current were measured in dependence of the velocity of the cooling water w (m/sec) for various ducts at a pressure P = 1 ata and a water temperature of $t_w = 55 \div 60^\circ$ C. It was found that w diminishes with an increase of the duct after which it does not change any more after the quantity n = 0,384 at $\delta \simeq 2,5$ mm has been attained: $n = f(\delta)$. This function is a hyperbolic curve. Next, tests were carried out at equal velocities and diameters of duct, but for different temperatures of water at the output; graphically plotted they resulted in a straight line. Finally, curves were recorded for a pressure of up to 20 ata and in dependence on water temperature at a water velocity of less than 4 m/sec. The critical heat current in dependence on pressure can be expressed by the temperature of subheating $(t_k - t_w)$. In order to determine the dependence $q_{kr} = f(t_k - t_w)$ test points for various pressures were plotted in the coordinates $q_{kr} = f(t_w)$. Investigations were carried out with the cooling water moving from below upwards and vice versa; on this occasion it was found that the direction of the current exercises no influence on the critical heat current. Likewise the dependence of the latter on roughness was examined.

INSTITUTION:

CHIRKIN, V. S.

Call Nr: AF 1141876

AUTHOR: Chirkin, Viktor Sergeyevich

TITLE: Heat Conductivity of Industrial Materials; A Handbook. (Teploprovodnost' promyshlennykh materialov. Spravochnoye posobiye)

PUB. DATA: Gosudarstvennoye nauchno-tekhnicheskoye izdatel'stvo mashinostroitel'noy literatury, Moscow, 1957, 165 pp., 7,000 copies.

EDITOR: Labuntsov, D. A., Candidate of Technical Sciences; Ed. of the Publishing House: Voskresenskiy, N. N.; Techn. Ed.: Matveyeva, Ye. N.; Reviewer: Polzikov, A. S., Candidate of Technical Sciences.

PURPOSE: The monograph is intended as a handbook for designers and constructors of machinery for different purposes.

COVERAGE: The book contains data on the heat conductivity of solid materials, liquids and gases at a wide range of temperatures. Specific weight, heat capacities and other

Card 1/18

Call Nr: AF 1141876

Heat Conductivity of Industrial Materials; A Handbook. (Cont.)

thermophysical characteristics are given for numerous substances. Basic concepts of the mechanics of heat conductivity processes and the relationship between heat conductivity coefficients and material and temperature, as well as short descriptions of methods for determining the heat conductivity coefficient for various substances, are also presented. A historical review of heat conductivity research mentions Lents, R.E., Professor, Stoletov, A. G., Professor, Kirpichev, M. V., Academician. The book reflects the works of Predvoditelev, A.S., Mikheyev, M. A., Timrot, D. L., Livshits, B. G., Lykov, A. V., Kondrat'yev, G. M., Vukalovich, M. P. and Mikryukov, V. Ye. Materials of Petukhov, B. S. and Yakob, M. are used for describing experimental devices. The author was aided by the teachers and scientific workers of the Moscow Engineering - Physics Institute. The book deals with Russian contributions. There are 61 references, 52 of which are USSR, 4 English, 1 German, 1 Czech, and 3 are translations from English into Russian.

Card 2/18

9117
SYSTEMS OF HEAT REMOVAL FROM NUCLEAR REACTORS. V. S. Chirkin. J. Nuclear Energy 5, No. [illegible] 124-34 (1957).

Different ways of using power plant and coolant [illegible] the heat evolved in a reactor core are described. A classification is given of heat extraction systems in which [illegible] boiling water, aqueous solutions, gases, and liquid [illegible] are used as coolant. (auth)

CHIRKIN, V.S., Doc Tech Sci--(diss) "Study of the transfer of heat [illegible] non-boiling and boiling water at high thermal loads." Mos, 1958. 23 pp (Min of Higher Education USSR. Mos Engin Phys Inst), 100 copies. Bibliography: pp 20-23 (100 titles) (KL,25-59,111)

24(0) PHASE I BOOK EXPLOITATION SOV/2945

Chirkin, Viktor Sergeyevich

Teplofizicheskiye svoystva materialov; spravochnoye rukovodstvo (Thermophysical Properties of Industrial Materials; a Handbook) Moscow, Fizmatgiz , 1959. 356 p. 12,000 copies printed.

Ed.: Ye. B. Kuznetsova; Tech. Ed.: S. N. Akhlamov.

PURPOSE: This handbook is intended for heat power physicists and engineers as well as for students at higher educational institutions.

COVERAGE: This handbook contains the latest thermophysical data on industrial materials. It also contains data on heat conductors, structural steels, fissionable materials, graphite, and porous and ceramic materials. The data were obtained by extensive studies relating to specific weight, thermal capacity, thermal expansion coefficients, and other thermophysical properties of gases, liquids, and solids within a wide temperature range. The author thanks Professor I. I. Novikov,

Card 1/8

Corresponding Member of the Academy of Sciences and Chief of the Thermophysical Department of MIFI (Moskovskiy inzhenerno-fizicheskiy institut-Moscow Institute of Engineering Physics), and A. V. Rimashevskiy, M. V. Babushkina, L. M. Teterin, and K. A. Chekandina, students at MIFI. There are 150 references: 109 Soviet, 31 English, 8 German, and 2 Czech.

TABLE OF CONTENTS:

CHIRKIN, Viktor Sergeyevich; SILETSKIY, V.S., kand. tekhn. nauk, retsenzent; BYSTRITSKAYA, V.V., inzh., red.; GORDEYEVA, L.P., tekhn. red.

[Heat conductivity of engineering materials]Teploprovodnost' promyshlennykh materialov. Izd.2., perer. i dop. Moskva, Mashgiz, 1962. 245 p. (MIRA 16:2)
(Materials--Thermal properties)

CHIRKIN,V.V.

CHIRKIN,V.V., kandidat tekhnicheskikh nauk; OSTROV,A.B., kandidat tekhnicheskikh nauk

Regulation of basic railroad standards. Standartizatsiia no.3:51 - 55 My-Je'55. (MLRA 8:10)

1. TSentral'nyy Nauchno-issledovatel'skiy institut Ministerstva putey soobshcheniya (TsNIIPS)

(Railroads--Specifications)

CHIRKIN,V.V., kandidat tekhnicheskikh nauk

Theoretical principles underlying the setting up of standards on railroad overall sizes. Standartizatsiia no.5:48-57 S-O'55. (MLRA 8:11)

1. TSental'nyy nauchno-issledovatel'skiy institut Ministerstva putey soobshcheniya

(Railroads--Standards)

CHIRKIN, V.V., kandidat tekhnicheskikh nauk.

Method of determining maximum dimensions for rolling stock of a given size by approximate analysis. Trudy TSNII MPS no. 105:75-92 '55. (Railroads--Cars) (MLRA 9:2)

CHIRKIN, V.V., kandidat tekhnicheskikh nauk.

Limiting the dimensions of underground railroads. Transp.stroi. 6 no.9:25 S '56. (MLRA 9:11)
(Subways)

CHIRKIN, V.V., kandidat tekhnicheskikh nauk.

New lead dimension measuring car. Tekh.zhel.dor.15 no.2:32 Mr '56.
(Railroads--Cars) (MIRA 9:7)

CHIRKIN, V.V.

Lowering the clearance of subways. Gor. khoz. Mosk. 30 no.9:38 S '56. (MLRA 9:12)

1. Starshiy nauchnyy sotrudnik Vsesoyuznogo nauchno-issledovatel'skogo instituta zheleznodorozhnogo transporta.
(Subways)

CHIRKIN, V.V., kandidat tekhnicheskikh nauk.

Mechanical loading gauge calculations for inscribing rolling stock into track curves. Vest.TSNII MPS no.2:62-63 Mr '57. (MLRA 10:4)

(Germany, West--Railroads--Curves and turnouts)

CHIRKIN, V.V., kandidat tekhnicheskikh nauk.

Basic trends in the development of modern passenger car designs abroad. Vest.mash. 37 no.6:78-86 Je '57. (MIRA 10:7)
(Railroads--Passenger cars)

CHIRKIN, V.V., kand. tekhn. nauk.

Using pneumatic suspension systems on railroad passenger cars. Vest. mash. 37 no.8:84-88 Ag '57. (MLRA 10:9)
(Car springs)

CHIRKIN, V.V., kand. tekhn. nauk; GETMANOV, R.Ya., inzh.

Serious shortcomings in an important document. Gor. khoz. Mosk. 32 no.7:42-43 Jl '58. (MIRA 11:6)

1. Instruktor shkoly avtolyubiteley Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu (for Getmanov).
(Moscow--Traffic regulations)

CHIRKIN, V.V., kand.tekhn.nauk

Centenial of the introduction of railroad dimension standards.
Put' i put.khoz. 4 no.3:33-34 Mr '60. (MIRA 13:5)
(Railroads--Standards)

CHIRKIN, Viktor Vasil'yevich, kand.tekhn.nauk; SOKOLOV, Ivan Georgiyevich, kand.tekhn.nauk; VERSHINSKIY, Vladimir Vasil'yevich, inzh. Primali uchastiye: BELAVENTSEV, N.V., inzh.; DOBKIN, S.Z., inzh. KAZANSKIY, G.A., inzh., retsenzent; SMIRNOV, A.V., red.; DANILOV, L.N., red.izd-va; SAFRANOVA, I.Yu., red.izd-va; UVAROVA, A.F., tekhn.red.; SOKOLOVA, T.F., tekhn.red.

[Technology of car construction] Tekhnologiia vagonostroeniia. Pod obshchei red. V.V.Chirkina. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 483 p. (MIRA 13:11)
(Railroads--Cars--Construction)

CHIRKIN, V.V., kand.tekhn.nauk

New dimensions of the clearance between structures and railroad rolling stock. Transp.stroi. 10 no.4:39-41 Ap '60. (MIRA 13:9)

(Railroads--Stnadards)

CHIRKIN, V.V., kand.tekhn.nauk

Some theoretical principles of rolling stock dimensions as approved by all-Union state standard. Vest.TSNII MPS 19 no.6:39-44 '60. (MIRA 13:9)
(Railroads--Rolling stock)

CHIRKIN, V.V.

Standardizing the dimensions of narrow-gauge railroads.
Standartizatsiia 25 no.9:25-28 S '61. (MIRA 14:9)
(Railroads, Narrow-gauge)

SHADUR, Leonid Abramovich, doktor tekhn. nauk, prof.; CHELNOKOV, Ivan Ivanovich, doktor tekhn. nauk, prof.; NIKOL'SKIY, Lev Nikolayevich, doktor tekhn. nauk, prof.; KAZANSKIY, Georgiy Alekseyevich, kand. tekhn.nauk; KOGAN, Liber Ayzikovich, kand. tekhn. nauk; DEVYATKOV, Vladimir Fedorovich, kand. tekhn. nauk; CHIRKIN, Viktor Vasil'yevich, kand. tekhn. nauk; MORDVINKIN, N.A., inzh., retsenzent; BRAYLOVSKIY, N.G., red.; MEDVEDEVA, M.A., tekhn. red.

[Designs of railroad cars] Konstruktsii vagonov. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1962. 415 p. (MIRA 15:4)
(Railroads--Cars--Design and construction)

MIKHEYEV, A.P., prof. doktor tekhn. nauk; CHIRKIN, V.V., kand. tekhn. nauk

Monorail railroads and prospects of their use. Zhel. dor. transp. 45 no.11:37-42 N '63. (MIRA 16:12)

S/137/61/000/012/101/149
A006/A101

AUTHORS: Tarnava, B. I., Chirkin, V. V.

TITLE: Advanced welding methods used at the "Teplokhod" plant

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1961, 25, abstract 12E153 ("Proizv.-tekhn. sb. Tekhn. upr. M-va rechn. flota RSFSR" 1960, no. 7, (11), 34-51)

TEXT: Information is given on advanced welding methods and equipment used at the "Teplokhod" plant; a unit for the automatic submerged arc-welding of flanges to cups and spheres of spherical joints of a dredging pipeline; automatic and semi-automatic machines used in boiler-building; automatic submerged-arc welding of circumferential boiler seams; a unit and technology for semi-automatic welding of parts to boiler drums; one-sided welding of longitudinal seams on boiler pipes, quality control and acceptance of boiler welding work; automatic and semi-automatic machines for the semi-automatic and automatic welding used in shipbuilding, technology of welding in CO_2, welding in CO_2 in shipbuilding, gas-electric torches for semi-automatic welding used at the "Teplokhod" plant.

V. Tarisova

[Abstracter's note: Complete translation]

Card 1/1

BONDAREVSKIY, V.P., inzh.; CHIRKIN, V.V., inzh.

Use of sawdust for electrode coatings. Svar. proizv. no.2:31 F '62. (MIRA 15:2)

1. Gor'kovskiy zavod "Teplokhod".
(Electrodes) (Wood waste)

CHIRKIN Veniamin Yevgen'yevich; SVIT, Ya.Ya., red.; TARASOVA, N.M., tekhn. red.

[Reorganizing industrial management in the people's democracies] Reorganizatsiia upravleniia promyshlennost'iu v stranakh narodnoi demokratii. Moskva, Gos. izd-vo iurid. lit-ry, 1961. 161 p. (MIRA 14:8)
(Communist countries—Industrial organization)

CHIRKIN, Y. D.

OSU-A 344
YEVGENOV, N. I., KHMYZNIKOV, P. K. and CHIRKIN, Y. D.

Ekspeditsiya k Ust'yam Rek Leny i Oleneka:
Expedition to the mouth of the rivers Lena and
Olenek.
Trudy Komiss. po Izucheniyu Yakutskoy Avt. Sov.
Soc. Respubliki, Vol. 3, part 1, 1928
Library of Congress, DK 771-Y2A17
Abstract in English
pp 260. A general description of the expedition
1920-21. Itinerary, astronomical, meteorological,
magnetic observations, index to geographic names
and authors, variation of water level, currents, etc. See also
parts 2 and 3 of this volume.

OSU-A 346

YE[illegible]OV, N. I., K[illegible]OV, P. K. and [illegible], Y. D.

Atlas Reki Leny ot Yakutska do Del'ty s Opisaniyem Sudovogo Khoda; Atlas of the River Lena from Yakutsk to the Delta with a Description of the Navigation Channel.
Trudy Komiss. po Izucheniyu Yakutskoy Avt. Svo. Sos. Respubliki, Vol. 3, part 2, 1928
Library of Congress, [illegible]
Text 19, pp. and 56 maps, scale mostly 1:84,000. Assembly map - scale 1:1,470,000. Based on the results of the Lena-Olenek expedition of 1920-21.

CHIRKIN, Y.D. (Yu. D.)

OSU-A 345

YEVGENOV, N.I., KHMYZNIKOV, P.K. and CHIRKIN, Y.D.

Atlas Protok Del'ty Reki Leny, Nizoviy Reki Oleneka i Buchty Tiksi: Atlas of Arms of the River Lena Delta, of the Lower Course of the River Olenek and of harbor Tiksi.
Trudy Komiss. po Izucheniyu Yakutskoy Avt. Sov. Soc. Respubliki, Vol. 3, part 3, 1928
Library of Congress, DK771-Y2A17
Text pp. 1-53; description of the delta, list of geographic names, etc. Assembly map, scale 1:1,240,000. 26 detailed maps, scale mostly 1:84,000.

CHIRIKHIN, IU. D.

K voprosu o postroike porta v uste reki Leny. [On the construction of a port in the estuary of Lena river]. (Severnyi morskoi put', 1934, no. 1, p. 83-96, maps).
DLC: GB651.S4

SO: Soviet Transportation and Communication, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

GHIRIKHIN, IU. D.

K voprosu o sudokhodnykh gorizontakh Leny. /The Lena river and its navigable horizons/. (In Severnyi morskoi put', 1937, no. 6, p. 85-88, diagrs.) DLC: GB651.S4

SO: Soviet Transportation and Communication, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

CHIRKIN, Yu.D.

Influence of tetracycline hydrochloride on the peripheral blood picture in guinea pigs in experimental gas gangrene produced by B. perfringens. Antibiotiki 5 no.1:102-107 Ja-F '60. (MIRA 13:7)

1. Kafedra mikrobiologii (zav. - prof. B.I.Kurochkin) Astrakhanskogo meditsinskogo instituta.
(TETRACYCLINE) (GANGRENE) (BLOOD)

CHIRKIN, Yu.D.

Specific immunity of animals infected with Bacillus perfringens and treated with ecmonovocillin or tetracycline hydrochloride. Antibiotiki 5 no.4:78-82 Jl-Ag '60. (MIRA 13:9)

1. Kafedra mikrobiologii (zav. - prof. B.I. Kurochkin) Astrakhanskogo meditsinskogo instituta.
(CLOSTRIDIUM PERFRINGENS) (TETRACYCLINE)
(PENICILLIN)

CHIRKIN, Yu. D. Cand Med Sci -- "Effect of ecmonovocillin-l and hydrochloride tetracycline ~~hydrochloride~~ upon the course of experimental gas gangrene caused by Cl perfringens." Astrakhan', 1960 (Min of Health RSFSR. Ryazan' Med Inst im Academician I. P. Pavlov). (KL, 4-61, 212)

TATARINOV, Yu.S.; CHIRKIN, Yu.D.

Fractional composition of serum proteins in guinea pigs infected with Cl. perfringens and treated with ekmonovocillin-1 or tetracycline. Antibiotiki 7 no.4:335-339 Ap '62. (MIRA 15:3)

1. Kafedra biokhimii (zav. - dotsent Yu.S. Tatarinov), kafedra mikrobiologii (zav. - prof. B.I. Kurochkin) Astrakhanskogo meditsinskogo instituta imeni A.V. Lunacharskogo.

(BLOOD PROTEINS) (TETRACYCLINE)
(CLOSTRIDIUM PERFRINGENS) (ANTIBIOTICS)

CHIRKINA, A. I.

USSR/ Biology - Morphology

Card 1/1 ; Pub. 22 - 37/41

Authors ; Nikolyukin, N. I.; Chirkina, A. I.; and Burenina, K. S.

Title ; About the teeth of young hybrides and basic form of sturgeon

Periodical ; Dok. AN SSSR 98/2, 303-306, Sep 11, 1954

Abstract ; Thesis on the teeth of young hybrides and the basic forms of sturgeon is presented. Nine USSR references (1878-1954). Table; drawings.

Institution : State Medical Institute, Saratov

Presented by : Academician E. N. Povlovskiy, May 25, 1954

CHIRKINA, A. I.

20-1-57/64

AUTHOR CHIRKINA, A.I.,

TITLE The Sexual Glands of the Hybrid of Sturgeon and Beluga. (Polovyye Zhelezy gibrida mezhdu belugoy i sterlyad'yu - Russian).

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 1, pp 206-209 (U/S.S.R.)

ABSTRACT During the last years, particular attention was devoted to the question of breeding a hybrid fish by crossing sturgeon and beluga. For this reason, the problem of propagation was of importance. It was observed that there exist female(with ovaries) and male hybrids, the reproductive capacity had not yet been clarified. Therefore the investigation of the sexual glands was taken as starting point for any further research work. For the purposes of this investigation, 40 specimens of hybrids were used, ranging in age up to four years. The investigations led to the following results: Except for three specimens which clearly were hermaphrodits, the sexual glands developed rather well already after the second or third year, in spite of the fact that the environment was not favorable to sturgeons. After the development had been completed(sexual maturity), it could be observed that the hybrids were more similar to sturgeons than to belugas, the male specimens of which reach sexual maturity only after 13 years(and still later as far as the female specimens are concerned).

Card 1/2

The Sexual Glands of the Hybrid of Sturgeon and Beluga. 20-2-57/64

Saratovskiy meditsinskiy institut i Saratovskoye otdeleniye Vsesoyuznogo nauchnoy issledovatel'skogo instituta ozernogo i rechnogo rybnogo khozyaystva. Predstavleno akademikom Ye. N. Pavlovskim.

ASSOCIATION Not Given.
PRESENTED BY
SUBMITTED
AVAILABLE Library of Congress
Card 2/2